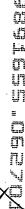
What is claimed is:

- 1. A metal oxide powder except α -alumina, comprising polyhedral particles having at least 6 planes each, a number average particle size of from 0.1 to 300 μ m, and a D_{90}/D_{10} ratio of 10 or less where D_{10} and D_{90} are particle sizes at 10 % and 90 % accumulation, respectively from the smallest particle size side in a cumulative particle size curve of the particles.
- 2. The metal oxide powder according to claim 1, wherein said D_{90}/D_{10} ratio is 5 or less
- 3. The metal oxide powder according to claim 2, wherein a ratio of an agglemerated particle size to a primary particle size is from 1 to 6.
- 74. The metal oxide powder according to claim 3, wherein said ratio of a primary particle size to an agglomerated particle size is from 1 to 3.
- 5. The metal oxide powder according to any one of claims 1 to 4, wherein said metal oxide is a simple metal oxide of a metal element selected from the group consisting of the metal elements of the Groups Ib, II, III, IV, V, VI, VII and VIII of the Periodic Table, except α -alumina powder.
- 6. The metal oxide powder according to any one of clams 1 to 4, wherein said metal oxide is a simple metal oxide of titanium.
- 7. The metal oxide powder according to any one of claims 1 to 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of magnesium, zirconium and iron.
- 8. The metal oxide powder according to any one of claims
 1 to 4, wherein said metal oxide is a simple metal oxide of cerium.



- 9. The metal oxide powder according to any one of claims 1 to 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of indium and tin.
- 10. The metal oxide powder according to any one of claims 1 to 4, wherein said metal oxide is a simple metal oxide of a metal selected from the group consisting of zinc, cadmium, gallium, germanium, niobium, tantalum, antimony, bismuth, chromium, molybdenum, manganese, cobalt, nickel and uranium.
- hedral particles each having at least 8 planes.
- 12. The rutile type titanium oxide powder according to claim 11, wherein a ratio of an agglomerated particle size to a primary particle size is from 1 to 2, and a BET specific surface area is from 0.1 to $10 \text{ m}^2/\text{g}$.
- a narrow particle size distribution except α -alumina, comprising calcining a metal oxide powder or a metal oxide precursor powder in the presence or absence of a seed crystal in an atmosphere containing at least one gas selected from the group consisting of (1) a hydrogen halide, (2) a component prepared from a molecular halogen and steam and (3) a molecular halogen.
- 14. The method according to claim 13, wherein said calcination is carried out in the presence of a seed crystal.
- 15. The method according to claim 13 or 14, wherein said gas contained in said atmosphere gas is [a] hydrogen halide.
- 16. The method according to claim 15, wherein said hydrogen halide is hydrogen chloride or hydrogen bromide.

- 17. The method according to claim 15, wherein said hydrogen halide is hydrogen fluoride.
- 18. The method according to claim 15, wherein a concentration of said hydrogen halide is at least 1 vol. % of said atmospheric gas.
- 19. The method according to claim 13 or 14, wherein said gas contained in said atmosphere gas is said component prepared from a molecular halogen and steam.
- 20. The method according to claim 19, wherein said molecular halogen is chlorine or bromine.
- 21. The method according to claim 19, wherein said molecular halogen is fluorine.
- 22. The method according to claim 19, wherein said component is prepared from at least 1 vol. % of said molecular halogen and at least 0.1 vol. % of steam, both based on said atmosphere gas.
- 23. The method according to claim 13 or 14, wherein said gas contained in said atmosphere gas is a molecular halogen which is chlorine or bromine, and a concentration of said molecular halogen in said atmosphere gas is at least 1 vol. %.
- 24. The method according to claim 13, wherein said metal oxide powder or metal oxide precursor powder has a bulk density of 40 % or less of a theoretical value.
- 25. The method according to claim 14, wherein said seed crystal had a bulk density of 40 % or less of a theoretical value.
- 26.1 The method according to claim 13 or 14, wherein said metal oxide having a narrow particle size distribution except α -alumina is formed on a site where said metal oxide powder or metal oxide precursor powder to be calcined is present.

- 27. The method according to claim 13 or 14, wherein said metal oxide powder or metal oxide precursor powder to be calcined is a metal oxide powder or metal oxide precursor powder of a metal element selected from the group consisting of the metal elements of the Groups Ib, II, III, IV, V, VI, VII and VIII of the Periodic Table.
- 28. The method according to claim 13) or 14, wherein said metal oxide powder or metal oxide precursor powder is a metal oxide powder or metal oxide precursor powder of a metal selected from the group consisting of magnesium, titanium, zirconium and iron.
- 29. The method according to claim 13 or 14, wherein said metal oxide powder or metal oxide precursor powder is a metal oxide powder or metal oxide procursor powder of cerium.
- 30. The method according to claim 13 or 14, wherein said metal oxide powder or metal oxide precursor powder is a metal oxide powder or metal oxide precursor powder of a metal selected from the group consisting of indium and tin.
- •31. The method according to claim 13 or 14, wherein said metal oxide powder or metal oxide precursor powder is a metal oxide powder or metal oxide precursor powder of a metal selected from the group consisting of zinc, cadmium, gallium, germanium, niobium, tantalum, antimony, bismuth, chromium, molybdenum, manganese, cobalt, nickel and uranium.

ASO 025